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(12) UK Patent Application (19) GB (11) 2 070 209 A

(21) Application No 8040248
(22) Date of filing
16 Dec 1980
(30) Priority data
(31) 3005969
(32) 16 Feb 1980
(33) Fed Rep of Germany
(DE)
(43) Application published
3 Sep 1981
(51) INT CL³ F41F 5/02
B64D 1/04
(52) Domestic classification
F3C DA
(56) Documents cited
None
(58) Field of search
F3C
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(54) A carrier for a multiple weapon payload of an aircraft

(57) A carrier for a multiple weapon payload of an aircraft is in the form of a pallet 10 having reinforcing ribs 11 arranged symmetrically parallel to the longitudinal axis 20 of the aircraft and on each of these reinforcing ribs 11 a weapon lock 12 for the reception of individual weapons.

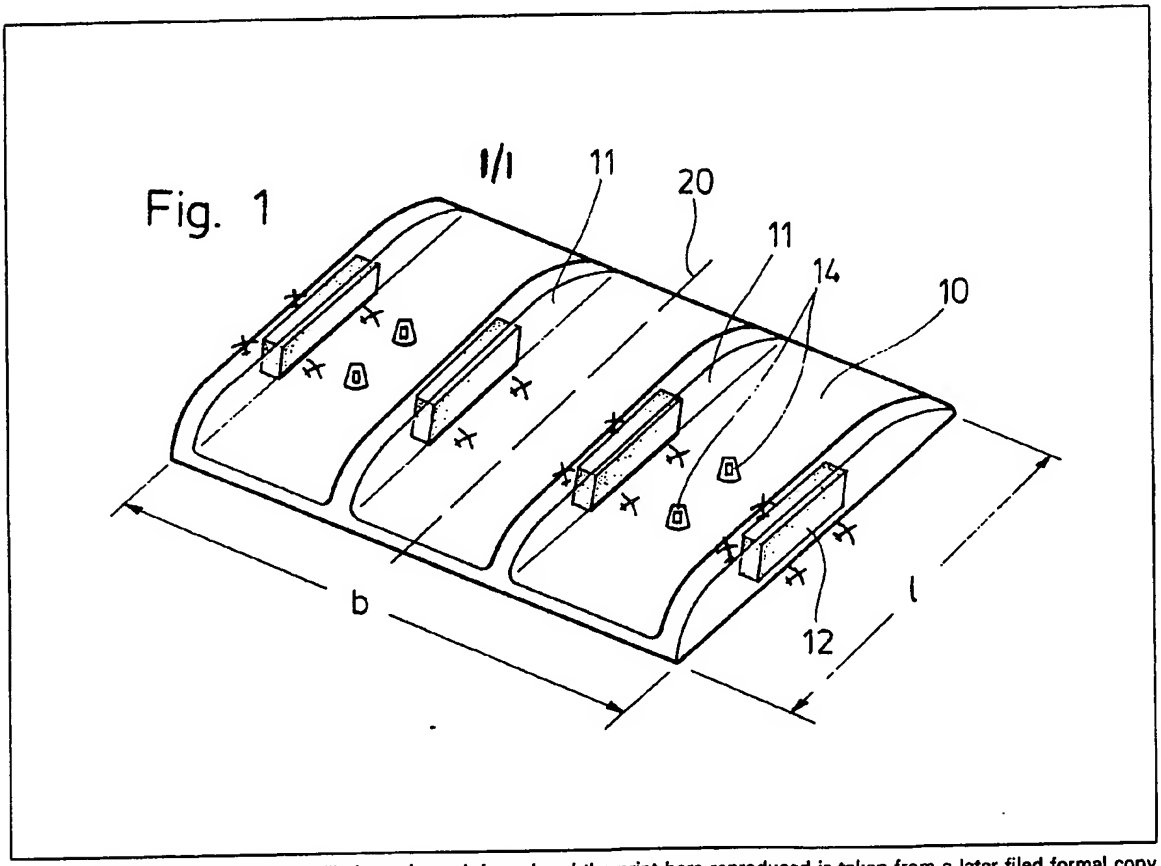

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Fig. 1

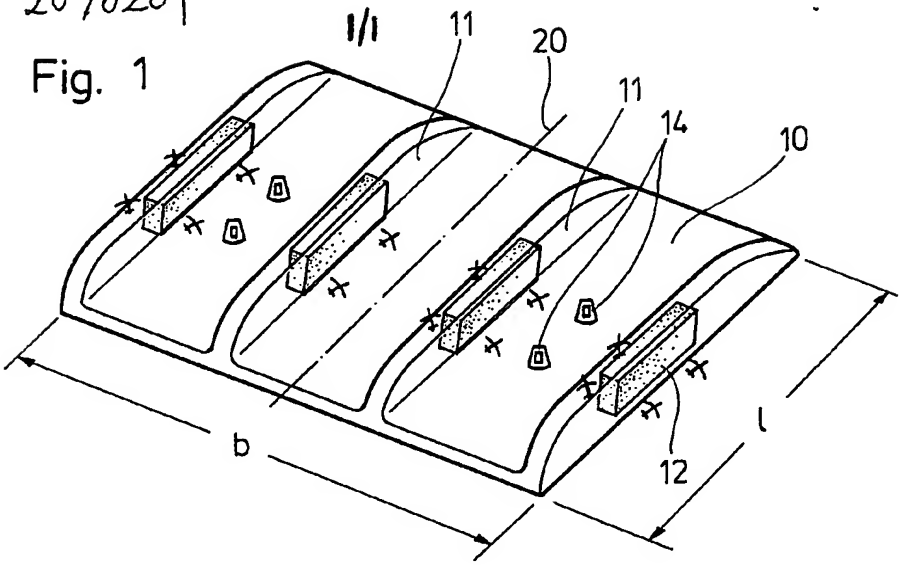


Fig. 2

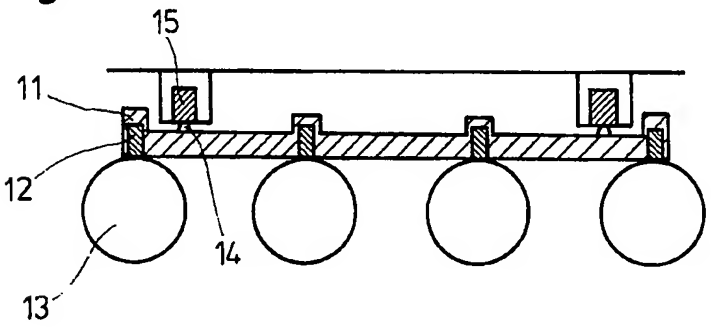
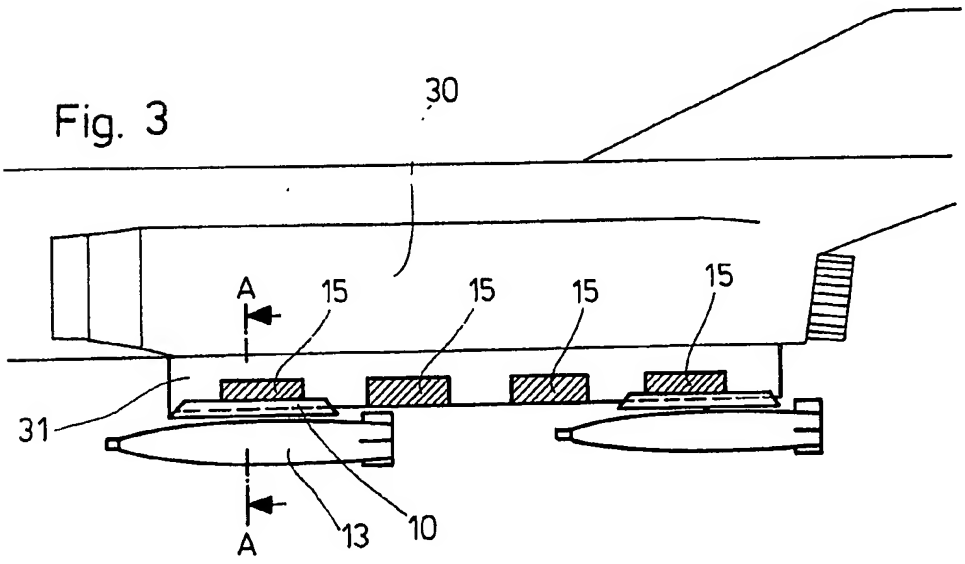


Fig. 3



SPECIFICATION

A arrier f r a multiple w apon payload of an aircraft

This invention relates to a carrier for a multiple weapon payload of an aircraft, which payload can be dropped, the weapons thereof arranged side by side.

Such carriers are already known 'per se'. Federal Republic of Germany Patent No. 478,705 discloses apparatus for dropping a payload from an aircraft, in which aircraft there is arranged securely a supporting body which is U-shaped in cross-section and which has hooks for carrying loads mounted for rotation on fixed axes at specific spacings from one another. Specially constructed electrical mechanisms are used for the dropping or jettisoning mechanism. This known mechanism has a number of disadvantages. The weapons carrier is a fixed constituent part of the aircraft, in other words the payload cannot be made ready previously, but is attachable only directly to the aircraft. A relatively narrow suspension web is formed by the U-shaped supporting body and as a result individual jettisoning of the weapons of the payload means that the centre of gravity of the aircraft is varied considerably during flight and it therefore requires considerably higher control forces for the positional stabilisation of the aircraft.

Known from Federal Republic of Germany Patent No. 476,119 is a bomb release device having bombs arranged side by side, in which the bombs are individually released and jettisoned by means of mutually displaceable parts. In Patent No. 476,119 a jettisoning mechanism is described which is susceptibility to trouble. The many instances of bomb jammings during use of this jettisoning mechanism are generally known.

Known from Federal Republic of Germany Patent No. 26 44 127 is a carrying and dropping mechanism for the weapons payload of an aircraft which carries out both the function of a bomb lock and that of a dropping mechanism for emergencies. However, in the case of this mechanism, supporting mechanisms, for each individual bomb, connected securely to the aircraft are necessary as also are additional holding, blasting and centering elements.

An object of the present invention is to provide a carrier for a multiple weapons payload of an aircraft which makes possible a more stable payload mounting and which is so designed that there is less variation of the centre of gravity of the aircraft upon dropping the w apons individually so that less control forces are necessary for the positi nal stabilisation of the aircraft. Moreover, it is a furth r object of the invention to enlarge the weapons payload relative to the bomb suspension d - vice which is present on the aircraft.

With th se objects in vi w the present invention provides a carrier for a multiple weapon payload of an aircraft, which payload can be dropped, the weapons thereof being arranged side by side, characterised in that the carrier is a pallet having reinforcing ribs arranged symmetrically parallel to the longitudinal axis of the aircraft and a weapon lock for the reception of each individual weapon of the payload is mounted in each case on these reinforcing ribs.

The invention will be described further, by way of example, with reference to the accompanying drawings in which:–

Figure 1 is a perspective view of a preferred embodiment of the carrier for a multiple weapon payload of an aircraft of the invention;

Figure 2 is a cross-sectional view taken along the line A–A of Fig 3; and

Figure 3 is a side view of the carrier of Figs. 1 and 2 mounted on an aircraft.

Referring firstly to Fig. 1, the preferred embodiment of the carrier for a multiple weapon payload of an aircraft of the invention illustrated therein is in the form of a pallet, indicated generally by the reference numeral 10, and has on its upper side, i.e. the side facing the fuselage of an aircraft 30 (Fig. 3) four reinforcing ribs 11, there being associated with each rib 11 a weapon lock 12 arranged in one plane and symmetrically with regard to the carrier's structure. The number of reinforcing ribs 11 will be governed by the number of weapons in the payload to be received by the carrier 11, and the design of the aircraft 30. The pallet 10, with its reinforcing ribs 11 arranged parallel to longitudinal axis 20 of the aircraft 30, will amount, in its measurement ratio of length *l* to width *b*, to approximately 1:2, i.e. the length of the pallet 10 will be approximately half as great as its width. The reinforcing ribs 11 thus extend in the longitudinal direction of the pallet 10 and parallel to the longitudinal axis 20 of the aircraft 30 and are flow-favourable air-conducting arrangements.

The pallet 10 is provided, in accordance with holding elements of aircraft adaption means 31 already arranged on the aircraft 30 with suspension eyes 14 for the symmetrical fastening to the aircraft's adaption bearings 15, in which respect the symmetry relates to the longitudinal axis 20 of the aircraft 30.

The pallet 10 provides a carrier for a multiple weapon payload of an aircraft having a number of considerable advantages. As a result of the pallet's a rodynamically favourable shape, it all ws the aircraft 30 a greater rang . The pallet 10 provides a more rigid suspension of th weapons in comparison with that which is achieved with known payload suspension means and has an advantageous ffect on the accuracy of scoring a dir ct

hit on a target. Moreover, with the pallet 10 preliminary loading is achieved i. . the pallet 10 can be loaded prior to use or to its suspension from the aircraft 30 which considerably reduces the loading times and thus the time which it takes to get an aircraft airborne and operational.

However, what is essential is that by using the carrier of the invention in conventional aircraft there is less variation in the centre of gravity of the aircraft upon dropping the weapons individually since with the pallet 10 a considerable percentage of the moments acting upon a drop in the flight attitude are intercepted or absorbed. In this way, considerably lesser control forces are necessary for the attitude stabilisation of the aircraft 30.

From Fig. 3 it will be seen that the adaptation means 31 is arranged on the aircraft's underside and consists of symmetrically arranged adaptation bearings 15 from which the suspension eyes 14 of the pallet 10 are suspended. It will be clearly seen that several adaptation means 31 are arranged and thus, if the size of the weapons so allow, several pallets 10 can be suspended under the aircraft 30. In these cases the carrier of the invention proves to be particularly advantageous compared with the known arrangements, because the pallets 10 can be stored already fully fitted with weapons ready for suspension from the aircraft 30. The carrier of the invention also allows a standardising of the pallets 10.

CLAIMS

1. A carrier for a multiple weapon payload of an aircraft which payload can be dropped, the weapons thereof being arranged side by side, characterised in that the carrier is a pallet having reinforcing ribs arranged symmetrically parallel to the longitudinal axis of the aircraft and a weapon lock for the reception of each individual weapon of the payload is mounted in each case on these reinforcing ribs.

2. A carrier as claimed in claim 1, characterised in that the pallet has a ratio of length *l* to width *b* of about 1:2.

3. A carrier as claimed in claim 1 or 2, characterised in that the pallet is provided with suspension eyes for its symmetrical fastening to the aircraft's adaption mounting.

4. A carrier as claimed in claim 1, 2 or 3, characterised in that the reinforcing ribs and the pallet are flow-favourable air-conducting arrangements.

5. A carrier as claimed in any preceding claim characterised in that the pallet is fastenable on the aircraft to special or standardised bomb suspension d vices.

6. A carrier for a multiple weapon payload of an aircraft susbstantially as hereinbefore described with refer nce to and as illustrated in the accompanying drawings.

Printed for Her Majesty's Stationery Office
by Burgess & Son (Abingdon) Ltd.—1981.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.